

# QUANTA

**VOLUME 2 ISSUE 7**

**AUGUST 1985**

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### INFORMATION ON THE GROUP

Membership of QUANTA (QL Users and Tinkerers Association) is by subscription to QUANTA, the group's newsletter, which is published monthly. Membership details are obtainable from the secretary. Membership of the group is open to anyone with an interest in the Sinclair QL microcomputer.

Members requiring assistance with problems related to the QL may write to or 'phone the secretary. An attempt will be made to put them in touch with a member who can help with the problem.

Workshops will be arranged from time to time in various parts of the country.

The group maintains a software library. Most of the programmes are free to members. A library list will be published from time to time. Programmes are obtainable from the sub-librarians.

A list of members in any particular area is obtainable from the secretary.

Please send all contributions to the newsletter to the editor.

Chairman and  
Newsletter Editor

Leon Heller,  
8, Morris Walk,  
Newport Pagnell,  
Bucks. MK16 8QD.  
Tel: (09081 613004

Secretary and  
Newsletter Publisher

Brian Pain,  
24, Oxford Street,  
Stony Stratford,  
Milton Keynes MK11 1JU  
Tel: (0908) 564271

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Quill, Abacus, Archive and Easel are trade marks of Psion Ltd.

### NOTES FOR CONTRIBUTORS TO QUANTA

Quill files on Microdrive cartridge or 40 track disk (single or double sided), are preferred. Cartridges and disks will be returned ASAP.

Printed contributions are acceptable. They should be printed on A4 paper, using a fresh ribbon. Do not fold the sheets, but keep them flat when posting. Short letters and articles may be handwritten, but please write legibly.

Short programmes can be included, but lengthy programmes should be placed in the library, and a description sent in for the newsletter.

### **EDITORIAL**

In the last issue, I mistakenly said that if "QL0685" appeared on your label, your subscription was due for renewal. "QL0685" is merely an indication of the issue date of that particular newsletter, so that suppliers giving discounts can check that the labels they receive are from fully paid-up members of QUANTA. Subscriptions are only due if you receive a reminder. Sorry about that.

We shall be having a stand again at the Olympia PCW show on 4-8 September. Would anyone who can help out on the stand please give me a ring - free admission as usual. I also have a few complimentary tickets; give me a ring if you'd like one.

All members of QLUB should have received their first issues of the new QL World magazine. I had hoped that my page about the activities of the group would result in a massive increase in membership. Unfortunately, this hasn't happened.

Sinclair have asked me to point out that the MG ROM mentioned by Andy Pennell in the last issue (p. 10) was never intended for production machines and was issued to software houses and a few individuals for evaluation.

I now seem to have cleared the backlog of contributions, so please send in some more, preferably in machine-readable form, to ensure that I can keep producing newsletters in the style to which you have become accustomed.

Leon Heller

### **MEMBERS' LETTERS**

I have been reading QUANTA closely for some months now, and find myself understanding a little more of what I read each time. Since when I acquired my QL I was totally ignorant in the computer area this says a great deal for the magazine's communication ability.

Some time ago I had an OK Writer enhancement fitted to my OKI Microline 83A printer. It works very well with Quill, Archive and Abacus, and the Version 2 packages have a printer driver for the OK Writer.

This driver is however incorrect in some respects in that the OK Writer does not support sub- and super-script and the codes given are wrong anyway. I have found it simpler to erase them because incautious use can interfere with printer operation.

The OK Writer has quite a good set of front panel controls and I find it easier and quicker to use these for the selection of typeface etc., especially when dealing with mixed correspondence. If anyone is considering buying one of these devices I'll be pleased to share my experience. I've also, after much juggling, got it to print both the pound and hash signs.

Finally, the enhancement provides both dot and half dot addressable graphics, but not for me. Easel either remains dumb or prints a few random dots. Any help or ideas will be very welcome.

Pat Stafford,  
5, Shenstone Close,  
Kiln Ride,  
Wokingham,  
Berks. RG11 3PS.

-----  
I ordered from Sunshine Books in Popular Computing Weekly, QLAG Adventure maker, by Tony Bridge and Richard N. Williams. It took over seven weeks to arrive instead of four, it does not work, and part of the documentation was not just missing but had not even been written, a perfect case for the Office of Fair Trading and the Sale of Goods Act.

When I complained to John Cook of Popular Computing Weekly, he made it quite clear that they had no intention of replacing when ready the faulty programmes or the graphics information when written, but would print an errata (in four or five weeks, perhaps) in Pop. C. W. for those who needed it. I mentioned something about fraud and the Sale of Goods Act and was promised the when (!) the programmes had been rectified he would ensure personally that I received a copy of the magazine in case I don't buy it every week. Why are they allowed to advertise and take money for something they know is not working or complete? It's dishonest; the home computer industry generally seems to have no morals or principles.

I've also been waiting five weeks for Cartridge Doctor from Talent.

However, I had to threaten Sinclair with legal action after 13 weeks waiting for my QL Toolkit, so it looks like the other firms aren't quite so bad.

Just one more point with reference to your visit to Sinclair. Car dealers generally have a bad reputation country-wide, and once you have bought the goods, faulty or not, they don't want to know, but had I known that Sinclair had entrusted his computer business as a sideline to a car dealer I would certainly not have bought a QL. No wonder the problems persist.

Brian McNulty,  
14, Millfield Road,  
Bridlington,  
East Yorkshire YO16 5AS.

Maybe I'd better let you know the sequel to my letter which was published in Vol. 2 Issue 4. There were two causes for concern.

1). A bug in Archive version 2.00 which causes a record being ALTERed to duplicate itself, and in the process erases the first record of the file.

2). Psion's attitude to my report of this bug.

First the bug. As far as I know, it only occurs when both the following conditions are true:

A: The field being altered is longer than the screen width (in fact, longer than 128 characters).

B: RAM is pretty full, with three open files and a lengthy programme in it, so that there are frequent accesses to Microdrive.

Even then, it doesn't happen on every occasion. After much experiment I have worked out a sequence of Archive commands which produces it infallibly when carried out immediately after loading Archive 2.00. I shan't give details here, since it probably depends on the presence of my files in RAM, but it involves ALTERing the same record three times in a row, deleting a few characters in the middle of the extended field on each occasion. This may sound an unlikely sort of thing to do, but remember I was trying to find a way of reproducing the bug infallibly; it happens in other situations too.

All in all, the bug can probably be avoided if you never use ALTER with records containing fields longer than the screen width.

Secondly, Psion. As I stated in my previous letter, I wrote to them reporting the problem. Promptly I received a patch programme intended to cure a problem in ordering the file. This was not the problem I had reported, although it could obviously be related, since both problems could be caused by an error in the record pointer. Anyway, I tried it. It didn't work. Records were still being duplicated and others deleted.

I wrote to Psion again, saying that it didn't work, and describing the problem again. Promptly I received another copy of the same patch programme which I had just told them didn't work. No additional explanations, nothing.

So I wrote again. This time I didn't hear anything. I continued to wait. After three weeks I lost patience and telephoned. My letter is presumably still sitting in someone's in-tray. The person I spoke to was very helpful, but simply did not believe what I said. The first record hadn't really disappeared, it was just temporarily mislaid by the ordering bug. I would find it again by using NEXT, BACK. As for the repeated record, I must be doing that myself, by using APPEND when I shouldn't, or some such thing. There couldn't be another bug in Archive, because if there were, somebody would have told them about it by now. Anyway, if I still had problems I should send him a copy of the cartridge.

Of course I still had problems. I sent him the cartridge. I heard nothing for a week. I telephoned. (I wonder what would have happened if I hadn't.) Yes, he had received the cartridge, but hadn't got round to looking at it. He'd phone back in a couple of days.

He phoned back. No, he hadn't tried the cartridge and the sequence of commands which would infallibly produce the bug, since I hadn't included my copy of Archive 2.00. (He hadn't asked for it, or given me any reason to think it might be faulty.) If I was still having difficulties despite having used the patch programmes, the pointer system on my files must have been permanently corrupted by the ordering bug. I should use RESET (the command) and reorder the file, and the bug would disappear. In any case, he would send me a copy of Archive version 2.01, in which the ordering bug was eliminated, and that should solve all my problems.

Well, version 2.01 has arrived. It works. The bug has vanished. The sequence of commands which infallibly produced the bug in version 2.00 produces a correctly ORDERed file with version 2.01. However, the same file which has been correctly ALTERed by Archive version 2.01 still produces the same bug in Archive version 2.00. Resetting and reordering hasn't made the slightest difference. So in version 2.00 there is still a bug which is obviously related to the ordering problem, but which is not solved by the patch programmes which Psion supplied.

A happy ending? Well yes, as far as I am concerned, and if I discount over 20 hours of wasted time. But I can't help thinking there's some poor other sod out there who hasn't yet realised he's lost a dozen records out of his files. And there's another one who has just discovered it and is being told by Psion 'There can't be another bug in the programmes. If there were, somebody would have told us about it by now.'

John Downie,  
Old Hall,  
East Bergholt,  
Colchester CO7 6TG.

-----

In regard to my monitor problem, I think I've cracked this one by reading magazines on the bookstall. A clue is given in Elektor this month which states that the QL provides signals with positive sync. If the monitor requires negative sync. which appears to be more usual, then incorrect frame triggering will occur. Included in Elektor is a sync. signal inverter which costs all of 50p to build, also a signal amplifier if the level is too low for a converted TV type of monitor.

Wireless World also carries details on converting the Philips G8 chassis to a monitor bearing in mind the safety aspects of using equipment with a live chassis. This is really a follow-up of articles in Electronics and Computing on feeding RGB signals to a Ferguson TX80 TV.

It may be worth considering having a QL get-together for whatever reason in conjunction with a radio rally run by the Ham Radio brigade. These are an excellent source of all kinds of computer/electronic gear at very favourable prices. The one run at Telford during September is on a Sunday, in the town centre malls, with a free bus service to the Ironbridge Gorge museums for anyone requiring something completely different. The rally at Droitwich is in a school having lecture facilities available with family incentives in the form of free buses to the strawberry fields plus children's sports etc. All the rallies I have been to have had something for everyone, providing a day out with very useful benefits.

Dennis Briggs,  
53, Gilpin Road,  
Admaston,  
Telford,  
Shropshire.

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Having just received my first Library cartridges may I say thank you to all those members who gave their programmes. Inevitably they were curate's eggs, for me good in parts but even those programmes I will never use were interesting for studying the structure.

Some points that might help future donors:

Remember we can't all afford a monitor; we all have a minimum of a TV.

Always include a MODE instruction; it would be helpful if it was shown whether the programme was written for TV or monitor (sometimes they didn't work very well on either).

The inclusion of a reset procedure might be helpful - we don't always want to press the RESET button. I've included one that resets the windows to the initial TV setting (brazenly plagiarised from Rob Sherratt's monitor one on Library 2).

Correct spelling enhances the style - 'shure' and 'collum' are not very good.

Having said all that, judged by 'commercial' software I think QUANTA members are not doing too badly. I used the QL User Microdrive Exchange. Two months and five letters after my original order I received my cartridge back. It may have been coincidence that that was two days after I wrote a personal letter to the editor. The programmes were not very good; of the four I ordered for £9.75, a golf one for £2.00 was quite good fun. When I wrote pointing out that the £5.00 one didn't even work on a TV, no reply.

Having read reasonable reports of CP Software's Bridge Player I bought a copy for £18.95 from my local Boots - they sell the Spectrum version for £9.95. The thing took two and a half minutes to load, seemed to have a goto or gosub every other line and played such basic bridge that I wrote to CP Software that evening. Overnight I discovered that the game produced such bizarre bids and playing that I returned it to Boots saying that I believed it contravened section 13 of the Sale of Goods Act. I got an immediate refund.

I was less pleased with the reply from a Chris Whittington BA of CP Software. The tone was sneering and sarcastic. His reason for the high price was the high cost of Microdrives - £9 more than a tape! I haven't received a reply to my more restrained letter of constructive suggestions.

I don't want to generalise but I do get the feeling that some software producers feel if £19.95 is good enough for Psion Chess that must be the going price for any QL. software. I won't be buying any more until I have seen it up and running.

Ian McRobert,  
115, Park Road,  
Peterborough.  
PE1 2TR.

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Through a Dutch member of your group I heard of your suggestion to exchange newsletters. I think this would be a good start for what may yet become a closer relationship between English and Dutch QL users and user groups. Bearing in mind that the QL hasn't been selling for as long as it has been in England, you will probably understand that our group is much, much smaller than the English equivalent.

I will send you copies of all our newsletters as well as cartridges with the programmes that we make available to our members in Holland. You may use and distribute the programmes freely as you see fit.

Ron den Breems,  
Kroonstaddrif 27,  
3067 RT Rotterdam,  
The Netherlands.  
Tel: 010-551234

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I have just discovered that the machine code extension to return the graphics co-ordinates and Turtle heading published in the May edition does not work with JM version QLs. I wrote and tested the code on a QL with the AH ROM and QDOS version 1.02. It works perfectly for me and I thought I had written the code to link with QDOS in the approved manner. Can anyone explain why it doesn't work with the JM ROM? Does it work with the JS ROM?



The channel table is set out in the same way as in the JM ROM and the function initialises correctly and returns values without crashing the machine. However, the values returned are all very close to zero, so some error is occurring either in locating the value in the channel table or in placing it on the RI stack. I would be most grateful for some quick assistance as the Turtle graphics programmes that I sent to the library depend on this function being available.

David Coles,  
2, Boothey Close,  
Biggleswade,  
Beds. SG18 0DG.  
Tel: (0767) 312886

### PROBLEM SECTION

Could someone please advise me on teaching myself machine code programming, the books most appropriate to help me in this, a way to implement the multi-tasking facilities, and how to read from and write to Microdrives, a sector at a time? The programmes to allow the function keys to be assigned varied functions in the May issue of QL User proved to be very useful. I wonder how I could expand this to include ALT etc.

Nanoj K. Mohindra,  
35A, Market Place,  
Fallowden Way,  
London NW11 6JT.

-----  
The QL with its 68008 processor offers us beginners quite a challenge as far as assembly language is concerned. With Leon's help (thanks Leon) I have managed to get most of my routines to work, and am coping with the syntax of the 68008 reasonably well.

The traps and vectors in QDOS however are another story...

The traps work well when used as recommended by Messrs. Dickens and Pennell provided they are used in subroutines and functions called by BASIC using the 'CALL X' or added function methods.

To make full use of the QL however we need to be able to do more than this. An example is to link to one of the interrupt tables and include a routine to service interrupts. This is where the problems begin.

Many of the traps no longer work when called this way. Neither do they work as specified when called within jobs although the problems here are not the same as when called within interrupt service routines.

Can anyone offer any help on this problem as it seems I must come to a full stop until someone comes to my aid.

To give a little more detail of some of the problems; if I want to print a string to the screen on channel 0 on some event occurring like an interrupt I use the TRAP #3 10.SSTRG call. The trap works correctly if loaded using LBYTES and executed by CALL X. However, if it is called within an interrupt service routine the system hangs forever if any timeout is used. If a zero timeout is used the system returns but no string is printed, and a "not complete" error code is returned.

Similarly, if included in a job which checks for a function key, when the key is sensed by reading the contents of SV.ARBUR the trap is entered but the key will not be printed to channel 0 until the enter key is pressed. The enter key is not required if a separate channel is set up to which the string is sent but channel 0 is often the one required.

This particular problem can be circumvented by sending a line feed character to the keyboard queue, but why is this necessary?

As it appears that QDOS does not put function key codes into the keyboard queue there should be nothing waiting there to be actioned so why the need for the line feed?

The problems seem to be centred around the use of channel 0, but I fail to see why. I feel sure that traps and vectors which use this channel and are called within a job or an interrupt routine must be treated in some special way, but none of the QDOS experts has so far given any clues on this.

I would appreciate it if anyone out there can shed any light on the problems, as I am unable to progress any further using QDOS calls until this problem is overcome. Also, others delving into QDOS will find the information necessary.

Please phone me or drop me a line if you can help.

Roy Barber,  
44, Dallin Road,  
Bexleyheath,  
Kent DA6 8EJ.  
Tel: 01-304 3856

-----

I've bought a JUKI 6100 daisy wheel printer, but I am unable to get the INSTALL\_BAS programmes for Quill and Easel (version 2) to work properly. Can anyone help?

I also need to type special French characters such as accented "e"s, "u"s and "i"s.

Bernard Dalens,  
9, Chemin de Villard,  
63670 Gergovie,  
France.

/\* Perhaps someone with a Juki 6100 could send Bernard a listing of the INSTALL parameters for his printer. I would think that a special French daisy wheel would be required to get the accents, and a special ROM, perhaps. The Silver Reed EXP 500 I use can have a French ROM and daisy wheel fitted.\*/

-----  
Have any members successfully connected a VTX5000 (Spectrum) modem to a QL? I would be very pleased to receive any hints, tips and help.

Diane Kurth,  
Switzerland  
(c/o Brian Pain).

-----  
How do I persuade a TRS-80 Mark VIII printer to Quill at will? Perhaps the version 2 Quill will operate on ser 2. I'll know when I collect my copy in August. However, even after creating a special socket to play Sir C's leads into my printer, it still frequently misses the first couple of characters after every carriage return and line feed. This is lousy for listing!

Petter Finne,  
PO Box 40280,  
Nairobi,  
Kenya.

/\* The missing characters at the beginning of a line is probably due to the handshaking signals being wrongly connected. \*/

-----  
Does anyone know of a disassembler that really works and produces correct and legible output, preferably a file that can be reassembled. I've tried the disassembler from Digital Precision, but it produces statements like:-

LEA 24(PC),A0  
or  
JSR 355E(PC)

which I have to translate. It has another problem: I loaded Quill at address \$72400 and tried to look for the first TRAPs, but I can't really trust the result.

For example, it produces the following sequence:

```
$7245A BSR 7245C
```

Disassembling the subroutine at 7245C produces

```
$7245A MOVE.W E7(A0,D4.L),D1  
$7245E UDEF
```

which should be

```
$7245C MOVEM.L D0/D1/D2/D3/A1/A2/A3,-(A7)
```

The library disassembler produces better, more legible code, and generates labels, but at address \$7245C it produces similar garbage.

I think a disassembler should generate labels, otherwise the object code should be displayed in hex, enabling the user to look for the correct addresses.

Wolfgang Göller,  
Rosenstr. 21,  
CH 8105 Regensdorf,  
Switzerland.

-----

I have had slightly more success in getting my Spectrum talking to my QL, after reading an article on page 32 of Popular Computing Weekly, Vol. 4, No. 8. The Spectrum now sends the programmes to the QL, but a number of bytes get corrupted along the way, and the QL will not list or run the programmes. By copying it to the screen I can see that it is mostly there.

Can anyone send me copies of the first three issues of the QLUB newsletter. I would pay for any photocopies, postage, etc. Sinclair, of course, ignored my plea.

Michael Scott,  
7, Beech Grove,  
Springwell,  
Gateshead,  
Tyne and Wear NE9 7RD.

#### **NOTES ON QL ARCHIVE - COMPANION CARTRIDGE**

Several recent issues of QUANTA have noted the availability of a companion cartridge to Chas Dillon's booklet on QL Archive.

This cartridge contains all of the procedures developed and discussed in the booklet, together with a utility programme for producing a printout of Archive screen format files. In addition, there is a library of procedures containing 30 or so routines

of general use to most applications and a set of notes describing how to apply the procedures.

Consequently, the cartridge is virtually full, and so certain steps have to be taken before the sample system can be run.

- a) Take a backup copy of the whole cartridge
- b) Transfer and then delete some of the files on the working cartridge.

e.g. library\_prg  
library\_notes  
screen\_print\_bas

- c) Create the required database files, using Archive as follows:

```
>load object "bldwedges"  
>initcar  
>Initwed
```

In principle, the system is then ready for execution, using the Archive command:

```
>run object "weddings"
```

People who have already received the cartridge should note the following error:

There is an error in the proc 'varset', which occurs in the two files 'newwed\_pro' and 'weddings\_pro'. The line

```
..... let w.wpydt1$=" ": let w.wpydt2$=" "
```

should read

```
..... let w.wpy1ldt$=" ": let w.wpy2dt$=" "
```

This line should be amended in each of the proc files (using the EDIT command of Archive). After the amendment, the proc file should be rewritten using the 'save object' command.

Chas Dillon.

### LATTICE C IMMINENT

Metacomco have just sent me a beta test copy of their QLC compiler, which was developed by Lattice Logic. Sinclair themselves were originally involved with this project, but they subsequently asked Metacomco to take it on. Lattice C on the IBM PC is recognised as an excellent product, so having it on the QL is something to look forward to. My first impressions are very favourable, and I'll be reviewing it in due course. It should be generally available in a few weeks, for about £90.

Leon Heller

### SCREEN COMPRESSION.

I have recently sent to Brian Davies, the source and binary files for a set of extensions to SuperBASIC to allow the user to SAVE and LOAD screen images to and from backing store in a compressed form. The programmes will, I hope, be included in the QUANTA library and will, I hope, be subject to a one pound royalty fee (My wife needs the money).

The programmes suite consists of a single programme which contains three PROCedures and one FUNction as extensions to SuperBASIC. This is the form with which I am most familiar and which I believe is the easiest to use. The programmes should, I hope, be the subject of an article in 'QL World' and therefore should be familiar to all concerned. In case some of us are not members of QLUB as well, the full, original, article is also included in the QUANTA library. The PROCedures are:-

- a). S\_SAVE,
- b) S\_LOAD,
- c). S\_SPOS

and the FUNction is S\_GPOS as described below:

- a).S\_SAVE channel, start, bytes

'channel' ... The channel number to which data must be sent.  
Default #3

'start' ... The start address of the data. Default = 131072 (\$20000) i.e. the start of the QL screen data area.

'bytes' ... The number of bytes to save. Default . 32768. i.e. the entire QL screen.

- b). S\_SLOAD channel, start

'channel' ... The channel number from which data must be loaded. Default - #3

'start' ... The start address of the data. Default - address from which data was 'S\_SAVE"d.

- c). S\_SPOS channel , position

'channel' .. The channel number which is to have it's position set.

'position' .. The byte to which the pointer is to be set

- d).S\_GPOS(channel)

'channel' ... The channel number whose byte position is to be returned.

Full installation and operational details are contained in the supplied 'quill' file SCREEN\_DOC as well as a more detailed description of programme operation. The supplied routines can be used to allow many more screens than would otherwise be possible to be saved to a Microdrive cartridge and will repay the initial outlay with the first cartridge full of screen data. It could be used, for instance to save cartridge space on that most excellent of QL games, 'WORM ADVENT GR' as supplied in the QUANTA library. Most of the screens used in this superb programme could be reduced by a worthwhile amount and therefore more could exist on the same cartridge. Some savings of other screens are given below. The screens are taken from a QL User magazine competition and show the amount of savings which can be expected using these routines.

Programme name/Author	Compressed	saves
'Cubs' by Stephen Andrews	3512	89%
'3rd world' by Nick Flowers	6510	80%
'Castle of Doom' by Andrew Arnold	8146	75%
'Tree' by A Pritchard	11166	66%
'Rainbow Castle' by Richard Belsey	12294	61%
'Chess logo' by PSION	3290	56%
'West logo' by TALENT	19302	41%
'DR WHY' by Hugh Mcgovern	28024	14%

As can be seen from the above table, the amount of savings possible depends very much upon the complexity of the screen image. Very simple screens will give large savings and very complex screens will give smaller savings. Nevertheless, savings can almost certainly be made in all types of screens and I would estimate that the 'average' screen could be compressed into 25% to 50% of the 32768 bytes normally required. This would save the 'average' user 50% to 75% of the cost of Microdrive storage for screen data. An additional benefit should manifest itself in the form of faster screen loading. The theory being that if the file is smaller it should load quicker and in most cases this will prove to be true.

#### RECOMMENDED PROGRAM USE.

1) To load the PROCedures and FUNction to memory, the following code may be either typed in or loaded into the 'BOOT' programme:-

```
104   REMark Assumes 'BOOT' device is
105   REMark code file 'mdv1_screen'
106   base - RESPR(1024)
107   LBYTES mdv1_screen_code , base
108   CALL base
```

- 2). To save a whole screen to file 'screen1' on mdv2:-

```
100 OPEN NEW #3 , mdv2_screen1
110 S_SAVE #3 , 131072, 32768
120 CLOSE #3
```

- 3). To compress 3 screen images from mdv1 to mdv2:-

We will assume the screen images have been created by 'EASEL' and are called bar1\_pic, bar2\_pic and pie1\_pic on mdv1.

```
100 OPEN NEW #3 , mdv2_pics
110 REMark file bar1_pic
120 LBYTES mdv1_bar1_pic , 131072
130 S_SAVE
140 REMark file bar2_pic
150 LBYTES mdv1_bar2_pic , 131072
160 S_SAVE
170 REMark file pie1_pic
180 LBYTES mdv1_pic1_pic , 131072
190 S_SAVE
200 CLOSE #
```

- 4). To locate the starting byte positions of the three files previously compressed to file mdv2\_pics

```
100 OPEN_IN #3 , mdv2_pics :CLS #0
110 PRINT #0 , "Screen #1 is address 0"
120 PAUSE
130 S_LOAD : CLS #0
140 PRINT #0 , "Screen #2 is address " ;S_GPOS
150 PAUSE
160 S_LOAD : CLS #0
170 PRINT #0 , "Screen #3 is address " ;S_GPOS
```

- 5). Assuming the three addresses returned from the above programmes were 0, 6156 & 14674 then in order to display the three screens in reverse order:-

```
100 DIM n(2)
110 n(0) = 0 : n(1) = 6156: n(2) = 14674
120 OPEN_IN #3 , mdv2_pics
130 FOR i = 2 TO 0 STEP -1
140     S_SPOS n(i)
150     S_LOAD :
160     NEXT i
170 CLOSE #3
```

**NOTE:** In the previous examples how we have used the defaults instead of entering the same information all the time.

Ron Dwight,  
T:mi Softronic



### TV MODE RESET PROCEDURE

```
10000 DEFine PROCedure reset
10010  MODE 8
10020  WINDOW #0,512,256,0,0
10030  CLS #0
10040  WINDOW #2,448,200,32,16
10050  WINDOW #1,448,200,32,16
10060  WINDOW #0,448,40,32,216
10070  PAPER #2,1:STRIP #1,2: INK #2,7
10080  PAPER #1,2:STRIP #1,2: INK #1,7
10090  PAPER #,0,0:STRIP #0,0: INK #0,7
10100  BORDER #0,0
10110  CLS #0:CLS #1
10120 END DEFine reset
```

Ian McRobert,  
115, Park Road,  
Peterborough PE1 2TR.

### KEYDEFINE

Many thanks for your review of my programme in QUANTA. I've had a very good response from members and quite a number of letters of encouragement from fellow members.

I wish I could say the same for the computing press. None of the 10 copies I sent for review has yet received a mention, which is very disappointing.

I have just upgraded the programme. The main differences are:-

- 1) The "dir\_help" routine is included to give single key control of often needed utilities including dir drives 1 and 2, printer spooler, job info. And load help file. A major feature is the programme's ability to restore the window background after use.
- 2). Control codes can now be placed on keys to enable command sequences to be defined. This is very useful within Quill or an editor.
- 3). The install routines now enable the device name to be changed for disk users.

- 4). A fast cartridge copy programme is included.
- 5). The "quill\_key" and "asm\_key" routines have been made more extensive.
- 6). The manual has been updated.

The retail price is still £9.95, but I can offer the following to QUANTA members:-

KEYDEFINE 03 : £7.00 (fully inclusive with cartridge and manual.

UPGRADE TO 03 : Return original cartridge with £2.00

KEYDEFINE\_ASM : £7.00 (full assembly listings of all the programmes on version 03)

Barry Ashfield,  
Psientific Software,  
37, Cottesmore Road,  
Hessle,  
North Humberside,  
HU13 9JQ.

### SCREEN INITIALISATION PROCEDURE

Here is a procedure that sets up the standard Sinclair screens and resets all screen commands. It is called by typing

```
INIT_S "MON" or INIT_S "TV"
```

and can be used as a keyboard command or within a programme, as all variables are local. I have found it particularly useful for 'Magazine' programmes where the author does not define the screens within the programme, and also as I use my own format and find it irritating to have to reset every time I want to get the default screen. I also have two other procedures, one, called INIT, that sets up my own format, and another, called INIT\_Q, that sets up the IQLUG format.

Recently I returned five Microdrive cartridges to Sinclair, and had them replaced without any hassle.

```
100 DEFine PROCedure init_s(type$)
110   LOCAL l,w,d,x,y
120   IF NOT(type$=="mon" OR type$=="tv"): RETURN
130   FOR i=0 TO 2:PAPER #i,0:WINDOW #i,512,256,0,0:CLS #i
140   IF type$=="mon"
150     MODE 4:RESTORE 280
160     FOR i=0 TO 2:READ w,d,x,y:WINDOW #i,w,d,x,y
170     BORDER 1,7,3:BORDER #2,1,7,3
180     PAPER 2:PAPER #2,7
```

```
190          INK #0,4:INK 7:INK #2,2
200          ELSE
210          MODE 8:RESTORE 310
220          FOR i=0 TO 2:READ w,d,x,y: WINDOW #i,w,d,x,y
230          PAPER 2: PAPER #2,1
240          FOR I=0 TO 2:INK #1,7
250          END IF
260          FOR i=0 TO 2: FILL #i,0: FLASH #i,0:OVER #i,0:UNDER #i,0:
          CLS #i
270          :
280          DATA 512,50,0,202
290          DATA 256,202,256,0
300          DATA 256,202,0,0
310          DATA 448,40,32,216
320          DATA 448,200,32,16
330          DATA 448,200,32,16
340          :
350          END DEFine init_s
```

Kevin J. Bean,  
XTD/11 PDO,  
PO Box 81,  
Muscat,  
Sultanate of Oman.

#### **QL SPARES AVAILABLE**

Member Dennis Briggs recently sent me the stock list of a company called CPC, who are the official distributor of QL spares. Every part of the machine is available with the exception of the PCB. CPC only supply to the trade, but Dennis is willing to order parts on behalf of members, through his firm. We have ordered the Service Manual, test cartridge and RS-232 test cable through Dennis. The cartridge and cable arrived very quickly, but Sinclair seem to be up to their usual tricks with the Service Manual - it isn't available! We hope to be able to loan these items to members who require them.

Dennis's address is:-

Dennis Briggs,  
53, Gilpin Road,  
Admaston,  
Telford,  
Shropshire

Leon Heller

#### **NEW ZEALAND QL USERS CLUB**

A QL Users Club has been formed in New Zealand with a newsletter which is distributed on Microdrive cartridge. Membership is free. They are organising a software library, and have sent me a copy of the first cartridge, for possible inclusion in our library.

The contact is:-

Peter Avery,  
New Zealand QL Users' Club,  
20, Stokes Road,  
Epsom,  
Auckland,  
New Zealand.

**ADDITIONS TO SUPERBASIC CONTAINED IN  
Version JS ROMS & QDOS 1.10  
as fitted to Sinclair's QL Micro-computer.**

**Additional Commands and Instructions:-**

WHEN	Conditional action "when"	
WHEN ERROR	Error catching routine.	
END WHEN	End exception processing.	
REPORT	Report error to channel x	
ERNUM	Returns the Error number.	
ERLIN	Returns the Error Line number.	
TRA	Translate character on receive/transmit	
ERE_NC	Not Compete.	Error Code. -1
ERR_NJ	Invalid Job	-2
ERR_OM	Out of Memory	-3
ERR_OR	Out of Range.	-4
ERR_BO	Buffer Full.	-5
ERR_NO	Channel Not Open.	-6
ERR_NF	Not Found.	-7
ERR_EX	Already Exists.	-8
ERR_IU	In Use.	-9
ERR_EF	End of File.	-10
ERR_DF *	Drive Full.	-11
ERR_BN	Bad Name.	-12
ERR_TE	Transmit Error (RS232C Parity).	-13
ERR_FF	Format Failed.	-14
ERR_BP	Bad parameter.	-15
ERR_FE	Bad Change of medium.	-16
ERR_XP	Error in Expression.	-17
ERR_OV	Overflow.	-18
ERR_NI	Not Implemented	-19
ERR_RO	Read Only.	-20
ERR_BL	Bad Line.	-21

**NOTE\*** The Error variable 'ERR\_DF' causes the machine to hang and should therefore never be used in this version of ROM.

The JS version also no longer has any limit on the input buffer. I have input strings of 5000 Characters and more. Very handy as Quill files may now be read into a SuperBASIC file as one string and worked on. The buffer length for input on AH was only 255 characters.

**Details of the commands:-**

Then WHEN <expression> construct.

This is one of the more useful additions in "JS" and is used some what like a reverse "IF THEN" statement. But applies to the whole programme following the "WHEN" statement and can therefore be described as true exception handling. It will work with strings as well as numeric

variables. There is however one snag. "WHEN" will only work correctly with internally generated variables like "RND". To get the correct action on other variables one must pass them to an internal variable ie (a-b). At this point the "WHEN" command will be invoked.

**Syntax:-**

WHEN <Expansion>END WHEN

When the expression is met the action detailed will be invoked. Note the variable must be internally generated ie: passed to the test variable.

**Samples:-**

When (numeric):-

```
100   CLS
110   WHEN input_number >-125
120     PRINT "This number is selected by 'WHEN'"
130   END WHEN
140   :
150   REPEAT Loop
160     INPUT "Number...":Number
170     PRINT Number
180     input_number = Number
190   END REPEAT
200   STOP
```

WHEN (string):-

```
100   WHEN Name$ = "Anthony"
110     PRINT "Putting you though to secret file."
120   END WHEN
130   REPEAT Loop
140     INPUT"Input your name..";Input_Name$
150     PRINT "Hello ";Input_Name$
160     Name$ = Input_Name$
170   END REPEAT Loop
```

In then WHEN statement both variables and any logical operator may be used and any number of "WHEN"s may be used in a programme. ie.. "WHEN Number a+b/3" or "WHEN Number >=143"

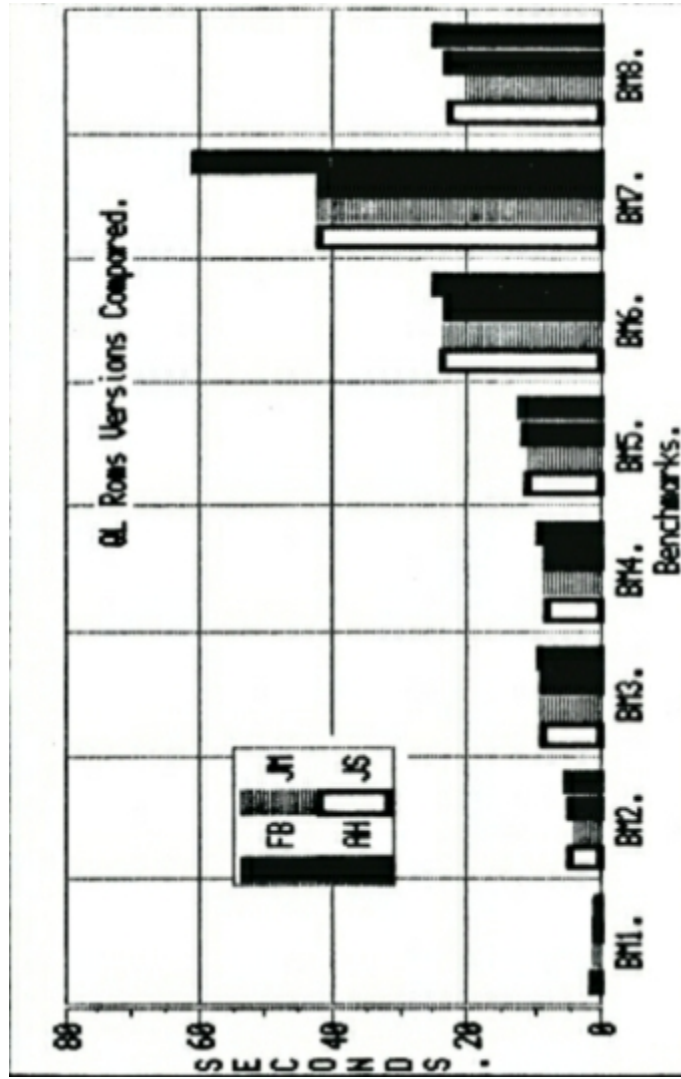
The WHEN ERROR construct.

This is used in the same way as the WHEN <expression> construct except that it is invoked whenever an error occurs. If this is used without a REPORT only the action programmed within the "WHEN" is carried out:-

```
100   CLS
110   WHEN ERROR
120     PRINT "An error of some kind has occurred."
130   END WHEN
```

It is not necessary to run the programme in order to see the result of "WHEN" statements. Just type a bad command in the command line and press enter. ie: pint <Enter>

If you require the normal error message to appear then the key word "REPORT" is used, this reports the error using the normal QL messages to the required device.



```
100 CLS
110 WHEN ERRor
120     PRINT "An error of some kind has occurred."
130     REPORT/42
140 END WHEN
```

With the programme above the user will be printed to the default device, Screen 1, while the report will be printed on Screen 2.

The remaining two commands "ERNUM" & "ERLIN" return data on the error. ERLIN returns the line number in which the error occurred, 0 if no line number is involved and ERNUM returns the error number. So we can modify the programme above to print both the error number and the error line:-

```
100 CLS
110 WHEN ERRor
120     PRINT "An error of some kind has occurred."
130     REPORT#2
140     PRINT#2,"In Line Number ";ERLIN
150     PRINT#2,"Error Number ";ERNUM
160 END WHEN
```

We can use the error flags to check on what error has occurred. These flags return true (1) if an error has occurred and false (0) if not.

```
100 CLS
110 WHEN ERRor
120     PRINT "An error of some kind has occurred."
130     REPORT#2
140     PRINT#2,"In Line Number ";ERLIN
150     PRINT#2,"Error Number ";ERNUM
160     IF ERR_NO THEN
170         PRINT" Open the channel dummy!"
180     END IF
190 END WHEN
```

As noted above do not use the flag ERR\_DF (Drive full) as this will cause the machine to hang-up.

Just one other note as yet I have not got the syntax correct for the translate command "TRA", this is meant to translate codes for RS232C interface. But as yet I can get no response.

Anthony C. Haddock

### SOME THOUGHTS ON ABACUS

I'd never used a spreadsheet before, but I worked through the Abacus manual and off I went on a moderately involved application, soon to come to a stop, bogged down in a morass of figures that seemed to change according to whims of their own, and zeros that popped up from nowhere. So I went back to Abacus itself, trying to understand its underlying logic. These notes are a result, and I hope they will help clarify the use of Abacus to others who, like me, have no previous experience of spreadsheets.

#### Cells:

It is important at all times to realize that there are two different entities associated with each cell reference, namely, the cell contents and the cell value. The value is the result of the contents. In the simple case, the contents are text/numeric, in which case the value is identical; contents

and value are the same. But otherwise, the contents are a 'formula' and the value is the text/numeric result of the formula; contents and value are different.

Formulae (which include COL= and the function INDEX) manipulate cell values; but the commands ECHO and COPY manipulate cell contents.

**Formulae:**

In the context of Abacus, a formula is an expression which contains a cell reference, either explicitly, e.g. A1+A2, or implicitly, eg row(). Note that even a simple cell reference, e.g. A1, is a formula. Many functions are treated as formulae (see later).

**Shared Formulae:**

A formula may be alone or it may be shared. An alone formula will have been directly inputted into its cell, and not subsequently ECHOed or COPYed. A Shared formula can be produced in two different ways: either by COL= master formula, or by ECHO or COPY. In the case of ECHO and COPY, the formulae that they refer to become the shared formulae.

**Overwriting or AMENDING?::**

In general, the easier technique of simply overwriting a cell's contents can be used. But AMENDING must be used in two cases:

- 1). To alter a shared formula to another formula. To do this, any cell with the shared formula has its contents AMENDED to the new formula. This new formula is then Shared with the other cells as before. Note that if the contents are AMENDED, not to another formula, but to text/numeric, then the alteration applies only to that particular cell, and this cell is removed from the collection of cells with the shared formula. (This is also what happens if a new formula is put in by overwriting instead of AMENDING).
- 2). In the special case of using COL=(OWN CELL) to sever the link between cell values and their associated cell formulas (see later).

**EMPTY cells:**

In formulae, an EMPTY cell is considered to have the value zero (0). Note that this includes functions, with the exception of two: COUNT and AVE, which ignore EMPTY cells.

The commands ECHO and COPY ignore EMPTY cells, i.e. the replicas are also EMPTY

**Functions treated as Formulae:**

AVE, COUNT, INDEX, IRR, LOOKUP, MAX, MIN, NPV, SUM, which must have explicit cell references in their arguments, and COL(), ROW(), Width, which have implicit cell references (i.e. the current cell), and the oddities

ASKN, ASKT, DATE, TIME

- all the above are always regarded as formulae.

But the other functions may or may not be formulae, dependent upon whether the argument is itself a formula or text/numeric.

PI is never a formula.

**Column Labels:**

Column labels can be used in formulae, which may help the comprehension of the user. But this method is less versatile than just using a cell reference, because, by using a label in the formula, the reference cell can only be on the same row as the current cell. You cannot, for example, displace a column downwards by referring to its label.

Note also that a column label only identifies a particular line of cells from top to bottom of the spreadsheet. Usually the cells referred to will be below the label, but they could be above it (or one could be the label itself).



**General Table:**

Refers to:	EMPTY Reference treated as:	OPERATION:	Contents of reference cell(s):	Shared Formula ?	Is current cell updated by AMENDING/overwriting reference cell ?	Is current cell updated by AMENDING/overwriting current cell ?
Value	0	CELL = FORMULA	Text/numeric formula	X X	yes yes	X X
Value	0	COL = MASTER FORMULA	Text/numeric formula	yes! yes	yes yes	X X
Value	Usually 0	FUNCTION* e.g. INDEX	Text/numeric formula	X X	yes yes	X X
Contents	EMPTY	ECHO (!:many)	Text/numeric formula	yes yes	X Yes, If amended	X yes, to formula
Contents	EMPTY	COPY many (!:)	Text/numeric formula	yes yes	X Yes, If amended	X yes, to formula

\*FUNCTION which is being regarded as a formula. A text/numeric function is not included in the table above. Nor are the operations CELL=text/numeric and COL=text/numeric.

(For brevity, I've left out ROW=; it's similar to COL=, of course).

The table may look dry and even obvious, but I have found it useful in understanding the subtleties of Abacus. The Esquimeaux are supposed to recognize about twenty different sorts of snow. Abacus seems to have as many different ways of copying!

**SOME PARTICULAR POINTS ON ABACUS**

The above was a sort of general discussion Now I would like to include below some particular points:

**Logical Operators, AND, OR, and NOT**

Although not specifically documented, these seem to be available for use in formulae and IF expressions.

( An arcane point: if you want 1 to be the value for TRUE - as opposed to any non zero number then to get the true value of a cell alone you need to use a formula such

- as NOT NOT A3
- or 1 AND A3
- or 0 OR A3

because A3 alone gives the numeric value, of course).

**Suppression of 'EMPTY' zeros:**

Usually, an EMPTY cell is taken to contain zero when referred to by a formula (including functions of course). However the function COUNT can distinguish between EMPTY and zero in a cell so that this can be used in an IF function To suppress the unwanted zero supplied by the EMPTY cell.

**A simple example:**

	A	B	→		A	B	( CONTENTS → VALUE)
1	EMPTY	A1		1		0	
2	0	A2		2	0	0	

**WHEREAS:**

	A	B	→		A	B
1	EMPTY	IF(COUNT(A1:A1),A1,'')		1		
2	0	IF(COUNT(A2:A2),A2,'')		2	0	0

B1 now, contains the null string, the next best thing to EMPTY.  
 (However, this method will also suppress text in the reference cells).

**To sever a value from its associated formula:**

This might be called the Fieldson problem, and acknowledgements are due to his solutions in QUANTA of January and May. The problem must be quite a common one, and its a deficiency in Abacus that the solution is not totally simple: When you've processed some data through a formula, how can you set the answer on one side while you use the formula to process fresh data ?

For a lone formula in a single cell-

the answer to the problem is to duplicate the answer(value) into another cell and then to overwrite/AMEND the contents of this cell to (OWN CELL)

eg if the answer is originally in A2:

[A3] A2  
 Then [A3] A3

The answer is now in A3, and unaffected if the value of A2 should be changed by updating of data.

An extension to the problem is how to replicate the answer. The obvious and best way is simply with a cell reference.

e.g. [A4] A3

However, there is another way which shouldn't work, but does!

- COPY, A3:A3 to A4

It is bizarre that this command makes the value in A4 take the value from A3 instead of keeping its pre-existing value. For what the command is doing is to copy the formula from A3 into the contents of A4, thus inserting the formula 'A4' into the contents of A4. But somehow the value of A3 also gets transferred. Is this a bug or a 'feature' ?

(You might expect ECHO to behave in a similar manner to COPY, but

ECHO, A3 to A4:A4

gives A4 the value 0. Probably, ECHO rubs out A4 before applying the formula 'A4' to EMPTY).

For a column of cells:

It should be possible to extend the above method for a single cell to a column by overwriting with

COL=(OWN CELL)

But because of a bug this does not work (except for the first cell, the true values get replaced by zeros). However, using the column in question will have a single shared formula, so the solution, as Captain Fieldson found, is to AMEND (OWN CELL) for one cell, and this then becomes the shared formula for the whole column; and it works.

To suppress 'EMPTY' zeros from popping up, use instead:

AMEND, IF( COUNT(OWN CELL:OWN CELL), OWN CELL, ' ').

Robert Matthews,  
 19 Trent View,  
 Marton, Gainsborough, DN21 5AG.

**BOOK REVIEW: by Sandra Essex**  
**QL ARCHIVE by IAN MURRAY, pubs. Blueprint (356 pages) £14.95**

Archive has a considerable potential which far outweighs the initial cost of a QL. It's shortcomings arise from inadequate documentation by Psion which perhaps is not unreasonable given the low start-up cost. Most database textbooks tend to re-hash the official manual but this book does teach in an imaginative step-by-step way how to build-up 'procedures'. At £14.95, it may seem expensive but, given the complexity of the subject, seems fair value for money.

Of the 356 pages, only some 16 pages on setting-up could be considered unnecessary with the rest laid out in good easy to read style. There is a comprehensive index which appears to cover most likely needs. Reference throughout is made to the differences found between Archive 1 & 2 so that it is of equal use to both. However, one of the lessons to be gained from reading it is to understand the benefits to be obtained from the version 2 up-date. The method of instruction is by practical examples. These are explained in easily understandable detail clarifying why one 'procedure' is preferable to another.

Early stages of the book centre on the need to create a database for a specific purpose which expands into ever more involved needs. Thus, the reader becomes aware of the greater power available to him or her by using a computer. As such, one is pleasantly surprised that one is taken easily beyond the usual early stages of other writers methods of 'how to run a Christmas Card list' etc. Many of the practical examples can, with some imagination, be modified to suit an individual's own database needs. But this would be missing the purpose of the book, which is to teach how 'procedures' are built-up and that some can be interchangeable. Final 'procedure' examples bring one to menu driven uses.

Other matters dealt with include 'exporting' to a Quill, Easel or Abacus file with some good explanations given. Also, there is a useful appendix on 'Getting out of Trouble' which includes a section on trying to save a corrupted file for example. In fact, there are many good hints throughout. There were a number of critical errors, including the usual printing mistakes, and I discussed these with the Author who had been unaware of them. As a consequence, future editions will be amended and in the meantime I was assured that a full errata insert would be prepared for existing stock. Two serious mistakes were:-

Page 99, pressing CTRL and 't' together will not switch the Trace Command on or off, and

Page 108, changing all records; ignore the instruction ... first, while not eof (), next, endwhile... but instead use ... All, endwhile.

In summary, this book is a good handbook for those uncertain of the technique of 'procedure' building, without which Archive can never be used to its fullest. The book could have gone further without too many extra pages. Also, one surprising omission was the lack of explanation that a 'procedure' can be used to 'create' files thus, amongst other things, avoiding the risk of a premature 'end-create' through key error. It seems that these aspects were intended to be covered but the Publisher decided against them!

Thank you very much for letting me see a copy of the book review by Sandra Essex of QL ARCHIVE by Ian Murray.

I was delighted to see that she found the book met our aim for the series, namely to teach in an imaginative step-by-step way.

I am also particularly impressed by the level of detail in which she appears to have read the book. I understand from the author that she has pointed out two minor typesetting corrections in addition to the points mentioned in the review. It seems that she has read all 356 pages in great detail and we are very pleased that the book has stood up so well to such scrutiny.

In fact the two 'criticisms' in the review seem a little unfair and I would like to explain why.

The comment with regard to page 99 and the Trace Command is correct although the book reflects the Sinclair manual and we understand from Psion that the programme i intended to operate in the way described in the book and that later versions will.

With regard to the point on page 108, there is a reference to the use of the 'All' command which reflects the Sinclair manual, although your reviewer is correct in saying that the latest version of Archive does allow the use of the 'All' command.

The comment in the review on the updating example arises as a result of a misunderstanding. The example on page 108 is absolutely correct as it is and I think that your reviewer may have been trying to do something else, such as update a key field, and in fact would have needed to reset and re-order the file before doing so. This is pointed out later in the book but it is not what was trying to be done in the example on that page and it is not surprising that your reviewer found it did not work.

Finally, I would like to correct the impression that as the publisher I decided not to include an important part of the book. The method of using Archive to create its own procedures is covered in Chapter 13 although the author chose use an example centring around the 'Order' command rather than the 'Create' command. The principles can be applied in exactly the same way. It is true that for reasons of space and cost we decided not to include a glossary in this book; we do not feel that that detracts from the overall value of the product.

I hope you will forgive me for commenting at length, but I think it is very important that the relatively minor points of criticism of your reviewer are put in context against such a long and complicated book.

Incidentally, your readers may be interested to know that the main reason why the book stood up to such a close scrutiny is because we typeset the book directly from the author's word processed disks and all the procedure listings and commands are similarly typeset electronically. It certainly gives us a great deal more confidence than the traditional methods of typesetting.

Richard Breckbank,  
Century Communications Ltd,

### **Speed - a problem of Microdrives or Programmers?**

Some comparisons of loading and saving times with the same files handled by different programmes on a expanded QL.

**Loading** a Microdrive QUILL\_doc file of 62 K takes with QUILL: 60 sec;  
with COMPUTER ONE editor: 15 sec

**Saving** (plus overwriting) of the same document:  
with QUILL: 120 sec - with COMPUTER ONE editor: 24 sec.  
with BOB SHERRATT'S fast copy prog.: 32 sec.

It seems that the potential of the Microdrives is somewhat hidden by programming techniques.

Wolfgang Göller

### LETTERS CONTINUED

I agree with John Tanner's comments about SuperBASIC, it is a great improvement over most versions of BASIC. I cannot help with his first problem, I have never suffered from the corruption of code by the obnoxious automatic PRINT. ( BASIC version AH ) His second problem I think I can explain however.

Mr. Tanner reported a problem when using loop counters as parameters passed to a procedure. In SuperBASIC parameters can be passed to procedures by name or by value. If the parameter is passed by name then the procedure's formal parameter is given the address of the actual parameter's value; the value can therefore be changed by the procedure and it behaves like a global variable. To stop the procedure from being able to change the value of the variable outside the procedure, the value only must be passed. This is achieved by making the parameter an expression rather than a simple variable name. The value of the expression is then evaluated before being passed to the procedure and the formal parameter only receives the initial value, not an address. A variable name can be made into an expression by enclosing it in brackets. An example may make this clearer:-

```
110 name = 5
120 PRINT "First call by name"\\
130 PRINT name; " - Value of 'name' before the procedure call"
140 test name :REMark Call to procedure by name
150 PRINT name;
160 PRINT " After the call the value of 'name' has changed"\\
170 INK 4
180 PRINT "Now for call by value"\\
190 value = 2
200 PRINT value; "Value of 'value' before the procedure call"
210 test (value)
220 PRINT value;
230 PRINT " After the procedure call the value of 'value' has not changed"
240 INK 2
250 STOP
260 :
300 DEFine PROCedure test (c)
310 c=c+10: PRINT "Inside procedure ";c
320 END DEFine
```

The consequence of all this is:- if you don't want the value of a variable to be altered by a procedure or function then put the variable name in brackets to make it an expression. (This means two sets of brackets with functions.)

My second comment concerns something Frank Page mentions in the Beginners' Section. He suggests that using the % sign to force the QL to use integers will speed the execution of programmes. It doesn't! I have tested this with a number of routines written using integers and floating point numbers and the floating point routines are always faster! The difference in speed is about 12%. in favour of floating point numbers.

In view of this I would advise beginners to avoid the use of the % sign. It is difficult to type, it makes code more difficult to read and its only advantage is a saving in the amount of memory required by the programmes, not likely to be a problem for beginners.

I also wonder whether Mr. Page is right to suggest that beginners should consider using GOSUB and GOTO. If they are real beginners then the idea of using procedures to develop structured programmes should be easy to grasp. It is only those who are already 'hooked' on using GOTO and GOSUB who find it difficult to find solutions to problems which avoid their use. GOSUB can always be replaced by calling a procedure, and the use of a suitable name will make the programmes much easier to understand. If you find yourself wanting to go back to use a piece of code again then either you should be in a loop ( REPEAT or FOR ), or you should turn that piece of code into a procedure so that it can be called several times just by using its name.

Mr. Page suggests that it is not important to write easily read code unless you wish to have it published. Like handwriting and keeping notes for oneself there is a certain amount of truth in that. However, if you do start to collect your own library of procedures it is much easier to make additions and alterations if you have well written and self-documenting code. Even when you have written the programmes yourself it is surprisingly difficult to understand 6 months later. Well written code can save you lots of time in the future, even though it costs a little more time initially. It is certainly important to get something to work so that you feel that you have achieved something. It can also be discouraging to go back to something you wrote last month and find that you no longer understand how it works, or even what it does. Personally I would recommend that beginners avoid using GOSUB and GOTO, like smoking it is hard to give up, but you don't miss it if you never start! By the way, what would "well structured rubbish" be ?

### Changing Colours

I am using my QL with a CTM 1400 TV/Monitor. The performance is quite satisfactory in all respects. I am using a lead which contains some resistors in the red, green and blue signals ( 270 ohm I think). I believe this is to reduce the peak voltage to 0.7 v from the 1 v output of the QL. After some hours of use white fades to a yellow and blue becomes black. Removing the lead at the QL end and shorting across the pins in the DIN plug produces some white flashes on the otherwise black screen. When the plug is replaced the display is then back to normal. It seems as though the blue output is being affected in some way, (possibly by a build up of static?) Can anyone explain what is happening please? Am I going to damage anything with my method of restoring the normal colours?

David Coles,  
2, Boothey Close,  
Biggleswade,  
Bedfordshire.  
SG18 0DG  
Tel : 0767 - 312886

You ask for a few comments at sundry points in QUANTA July.

### **PSION**

Two problems on Archive -- lock-up on running out of memory and inability to 'order' on 43 of 49 fields -- were each answered in 48 hours (5 times faster than a Metacomco software set of queries). The second PSION query required a further 48 hours to look at my cartridge copies of database and Archive 2.0. Solutions were a 'patch' -- that is, a short programme -- to 'doctor' the Archive 2.0 I then had (for the first), and a copy of Archive 2.1 (for the second). It occurs to me that maybe 2.1 does not have the 'duplicates' bug of Downie and Mason (I can't afford to test this on my dbf as it is simply too precious!). Full marks to PSION -- and also to Sandra Essex for ideas and help.

### **Chas's notes**

'Interesting' but tough. Too tough for businessmen. 3 out of 10 for writing; only 1 out of 10 for organised and orderly presentation from a simple and straightforward user's viewpoint. Sorry. I'm on my way to buy Alison's -- I need it.

### **Cartridges; Do they play up?**

Not with me. Back to good 'ole HMS's (or Boots) with them if they show any quirks at the '6 format and copy run' I give them when new. Quirks? I've met 3.

1. Pop-out. The cartridge doesn't stay in, but moves out 1 or 2 mm. The computer reports "bad or changed medium".
2. Concrete mixer sounds.
3. Format fails -- even once.

ALT, CTRL, and 7

Press all three on my QL and dangerous things happen. But not in the local Boots with the demonstration QL software running. Instead "Eek!" appears. Like you said, trapped with suitable software.

### **Archive 'backup'**

No problems. Perhaps testing Archives 1.0, 2.0 and 2.1 can decide where the fault lies, with PSION or Sinclair. If with the latter, in it goes and out with a fault-free one (an MG? -- nice name).

Ernest Palfrey,  
Coxboro' Cottage,  
COOKHAM,  
Berks.

### MORE BENCHMARKS

Having just dispatched my item on PCW benchmarks to Leon I opened my current copy of Personal Computer World, July 1985, to find a whole new batch of benchmarks designed to compare machines in a number of different ways. The article, by Dusko Savic and Ninoslav Cabric, compared nine computers on a range of operations mainly to give speed ratings but also to compare arithmetical accuracy. The QL was not included in the comparison so, of course, I had to run my own tests to see how the QL compared. The tests were based on two short programmes with the insertion of a different operation for each benchmark. The speed comparisons, I thought, were most revealing showing the strengths and weaknesses of the machines. Some operations taking up to 100 times longer on one machine compared with another. The programmes which times the speed of operation is run with the REMark at line 40 firstly to measure the loop overhead which is deducted from the following timings to establish the net time of the operation being tested. Subsequent runs replace the REMark with the test code. A second programme was used to compare accuracy but suffice it to say that the QL was better than the average but there were no remarkable differences.

The timings are in milliseconds per operation and my figures were obtained using Ron Dwight's 50 Hz clock, without which it would have taken much longer to obtain acceptable accuracy.

#### Speed Test Programme:

```
10 DIM X(20),Y(20),A(20,20),B(20,20)
20 K = 5:Y(15)=7:B(5,10)=3:BEEP
30 FOR I = 1 TO 1000
40 REM insert code here
50 NEXT I
60 BEEP:END
200 RETURN
```

Micro	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1. FOR ....NEXT	5.8	1.4	1.7	1.0	0.7	1.9	1.1	2.5	2.5	2.2

#### ASSIGNMENT

2. X=5	2.3	2.7	1.0	0.7	0.7	1.5	0.3	2.0	1.9	1.0
3. X=K	3.0	1.1	1.7	0.6	0.6	1.3	0.2	2.0	1.3	1.0
4. X=Y(15)	4.6	4.9	2.8	1.2	1.1	3.9	0.7	3.2	2.1	3.2
5. X(7)=K	5.1	4.8	2.5	1.1	0.9	3.9	0.7	2.5	1.8	3.3
6. X(7)=5	3.5	6.0	2.1	1.2	1.0	4.2	0.9	2.6	2.2	3.3
7. X(7)=Y(15)	6.0	8.6	3.9	1.7	1.3	6.5	1.4	3.7	2.4	5.5
8. A(1,12)=B(5,10)	9.4	13.7	6.7	2.7	2.6	14.1	3.0	6.9	4.7	7.7
9. A(1,12)=K	6.0	7.2	3.7	1.6	1.6	7.8	1.6	4.3	2.7	4.4
10. A(1,12)=5	5.4	8.6	3.2	1.7	1.7	8.3	1.8	4.3	3.1	4.4
Average	5.0	6.4	3.0	1.4	1.4	5.7	1.2	3.5	2.5	3.4



**ELEMENTARY MATHEMATICAL OPERATIONS**

11. X=5+6	3.1	5.3	1.7	1.1	0.9	3.2	0.8	2.5	2.3	1.5
12. X=5-4	3.3	5.5	1.8	1.1	1.0	3.6	0.8	2.7	2.3	1.6
13. X=5*4	3.5	5.9	2.0	1.1	1.1	4.0	0.9	3.8	2.5	1.6
14. X=5/4	5.4	6.6	2.6	1.5	2.6	4.9	0.7	6.5	6.7	1.5
Average	3.8	5.8	2.0	1.2	1.4	3.9	0.8	3.9	3.4	1.6

**MATHEMATICAL FUNCTIONS**

15. X=SQR(5)	118.0	12.2	32.8	2.0	10.2	55.1	1.7	49.0	164.0	5.0
16. X=5^2	113.3	45.7	32.0	1.8	4.0	53.7	1.4	49.0	2.7	2.1
17. X=ABS(5)	3.3	3.3	1.6	1.0	0.9	2.5	0.5	2.7	2.2	3.2
18. X=LOGE(5)	69.4	24.6	17.7	2.9	17.6	24.3	0.9	24.5	128.5	6.5
19. X=EXP(5)	44.1	22.4	17.1	1.0	12.4	27.4	0.9	23.9	105.5	7.3
20. X=SIN(5)	49.2	22.2	20.1	2.6	30.3	30.0	1.0	21.5	89.5	7.7
21. X=COS(5)	50.2	21.6	19.5	2.7	19.2	28.9	0.9	22.5	94.5	7.4
22. X=TAN(5)	92.2	42.8	39.7	4.5	45.0	53.6	2.6	45.5	197.5	7.9
23. X=ATN(.5)	66.2	20.2	19.5	2.7	22.7	43.5	1.5	27.5	119.5	8.0
Average	67.3	23.9	22.2	2.4	18.0	35.4	1.3	29.6	100.4	6.1

**STRING OPERATIONS**

24. A\$="A"	3.6	51.8	1.2	0.7	0.5	1.1	0.4	1.9	1.5	1.1
25. X=VAL("1")	7.8	4.7	2.7	1.8	1.0	2.0	1.2	4.5	2.7	2.5
26. A\$=CHR\$(64)	5.8	54.2	2.1	1.1	0.8	4.1	0.9	3.0	2.0	3.6
27. X=ASC("1")	2.9	2.2	1.7	1.1	0.8	2.0	0.9	3.5	2.3	3.5
28. A\$=STR\$(1)	13.6	59.2	5.2	1.5	6.6	11.1	2.2	4.7	3.9	4.2
29. A5=INKEY\$	3.6	3.5	1.6	0.8	1.2	1.4	0.6	2.4	1.2	2.1
Average	6.2	29.3	2.4	1.2	1.3	3.6	1.0	3.3	2.3	2.8

**MISCELLANEOUS**

30. CLS*	64.2	32.3	67.1	31.4	4.2	43.3	?	17.0	18.5	44.8
31. GOSUB 200	2.4	3.0	0.6	0.6	0.4	1.4	0.1	1.2	0.7	2.2
32. GOTO 50	1.4	1.7	0.2	0.2	0.2	0.6	0.1	0.7	0.5	1.0
33. IF K=14 THEN X=1	3.0	3.0	1.7	1.4	1.0	3.7	0.7	3.3	2.8	2.3
34. PLOT 3,4	2.4	5.8	1.9	2.5	1.0	6.5	7	2.0	2.0	19.9
35. X=RND	15.6	4.7	2.3	0.7	1.5	6.3	0.5	4.5	2.1	1.5
36. X=PEEK(32000)	3.3	1.9	1.8	?	1.2	6.9	?	2.7	2.5	3.5
37. POKE 32000,0	3.0	3.6	1.9	?	1.0	6.5	7	2.0	?	4.4
Average	4.4	3.4	1.5	1.1	0.9	4.6	0.4	2.3	1.5	5.0

\* not averaged

Average timing	20.5	13.8	7.5	1.1	5.7	12.5	1.0	10.0	27.6	4.3
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**Key to micros:**

- |                   |                         |                                  |
|-------------------|-------------------------|----------------------------------|
| (1) Spectrum 48k, | (2) Sharp MZ-80K,       | (3) Sharp MZ-700,                |
| (4) Olivetti M20, | (5) BBC B,              | (6) Commodore 64, (7) PDP 11,34, |
| (8) Apple II,     | (9) Spectravideo SV328, | (10) Sinclair QL 128k            |

Except for the QL timings, all data is reproduced by kind permission of Personal Computer World.

John Tanner,  
43, Northumbria Drive,  
BRISTOL BS9 4HL.  
0272-623401

### ARCHIVE WORKSHOP

An Archive workshop will be held on the 8 September at the New Imperial Hotel, Birmingham. Details from Brian Pain.

### FOR SALE

I've got rid of my QL and therefore have the following items for sale:-

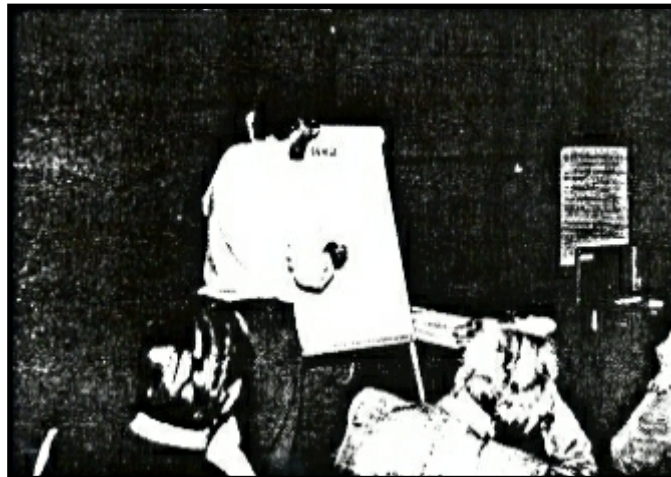
Three books in the Sinclair QL Series published by Hutchinson.

'Introduction to SuperBASIC on the Sinclair QL'	Cost £6.95	sell for £3.00
'Introducing the Sinclair QL'	Cost £6.95	sell for £3.00
'Desk top computing with the Sinclair QL'	Cost £6.95	sell for £3.00

Brother HR5 thermal printer with lead and power supply. As new.  
Cost £174.70 sell for £130.00

Four Microdrive cartridges - £10.00

K. G. Nicholls,  
24, Meir Heath,  
Stoke-on-Trent,  
Staffs. ST3 7JT.



Tony Tebby at the last Cambridge workshop

### **LIBRARY CORNER**

We have added the Sinclair "Demo" programmes to the library list and have their blessing to freely distribute it. I am leaving it on a cartridge on its own so that it can be passed to non-members. I have put it into two shops in this area and the same day received two enquiries for membership of QUANTA so distribute it and spread the QUANTA gospel!! You may also get some ideas by listing the programmes.

There are currently 245 programmes available from the library spread over 17 cartridges and if all the programmes currently under review are accepted I would expect to fill another three cartridges by September. Your sub-librarian will have copies as soon as they are available so keep in touch with him, or if you are not sure who to contact ring me on (0708) 27272.

Details of the programmes available are on the Libguide cartridge (£1.50 plus a formatted cartridge) or a printout can be obtained from Brian Pain for £2.75. A second library cartridge will be available shortly giving details of the new programmes. If you have disk drives, programmes can now be obtained on 3 1/2" disks from Jerry Tresman, 61, Ashdown Road, Chandler's Ford, Hants, SO5 1QX or on 5 1/4" 40 track from myself.

Syd Day,  
241, Highfield Road,  
Romford, RM5 3AW.

### **QUILL CONTROL CODES**

Nobody seems to have pointed out yet that, with most printers, you can get as many different control codes as you like out of Quill 2.00 without using the TRANSLATE options.

Printers of the Epson type use only seven bits out of the eight sent to them. This means that they treat CHR\$(128 to 255) in exactly same way as they treat CHR\$(0 to 127). So if you want Quill to send CHR\$(0) to your printer, type CHR\$(126) (CNTRL/ESC), if you want Quill to send CHR\$(27), type CHR\$(155) (CNTRL/;), and so on. The complete list of characters and how to type them is in the Concepts section of the QL User Guide, under "character set".

J. R. Downie,  
Old Hall,  
East Bergholt,  
Colchester,  
Essex CO7 6TG.



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Sinclair QL (Psion 2 packages)	£389-99
Microvitec CUB high res monitor with cable	£265-00
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Sinlex 256K RAM expansion	£189-00 NEW LOW PRICE
2 slot expansion console (eg hold RAM+QDISC)	£ 69-00 NEW
4 slot expansion console (CST)	£ ***** SOON
CST Q-DISC QL floppy disc interface	£139-00 NEW LOW PRICE
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10 5.25" floppy discs in plastic box	£ 29-95
1 3.5" floppy disc	£ 4-99 (10 for £45)
4 microdrives in plastic wallet (as with QL)	£ 8-99 NEW LOW PRICE
QL serial cable	£ 15-00
QL Centronics interface	£ 38-00

\* All disc systems include drive(s), power supply, all cables, Q-DISC interface, and extensive typeset manual. Just plug in and go.  
& WE HAVE LIMITED STOCK AT £349 (5.25" 360k dual only) - act fast

Software Utilities

Computer One Assembler	£29	Sinclair/Tony Tebby Toolkit	£24
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